CAMBRIDGE.—Dr. Forsyth, F.R.S., has been appointed Chairman of the Examiners for Part II. of the Mathematical Tripos.

Mr. E. H. Hankin, Fellow of St. John's College, and Professor of Bacteriology at Agra, has been appointed to represent the University at the Indian Medical Congress to be held at Calcutta in December.

The following is the Syndicate appointed to consider a report on the question of special encouragement, by new degrees or otherwise, for post-graduate study and research in the University: The Vice-Chancellor, Dr. Maitland, Dr. D. Macalister, Dr. Jebb, Dr. Forsyth, F.R.S., Prof. Marshall, Prof. Gwatkin, Prof. Foster, F.R.S., Prof. Thomson, F.R.S., Mr. A. W. W. Dale, of Trinity Hall, and Mr. W. Bateson, F.R.S., of St. John's College.

A Grace authorising the Cavendish Laboratory Syndicate to obtain specifications and tenders for the proposed extension of the Laboratory, was offered to the Senate on November 22.

SCIENTIFIC SERIALS

American Journal of Science, November.—On variations and mutations, by W. B. Scott. The author discusses the problem of animal morphology in its various aspects, and the different lines along which a solution has been sought for. These are that of comparative anatomy, embryology, and palæontology, to which, since Bateson's work on the study of variation, a fourth has been joined. The author criticises in detail Bateson's method and its results, and comes to the conclusion that we can no longer assume as a fundamental and self-evident truth that individual variations are the material from which new species are constructed.—Resonance analysis of alternating currents, by M. J. Pupin. This analysis is performed by means of a "resonator circuit" consisting of an inertia coil, a rheostat and a condenser in shunt with an electrostatic voltmeter. The capacity of the condenser is gradually increased from zero upwards. Whenever a capacity has been reached, which with the self-induction of the resonator circuit produces resonance with one of the harmonics in the main circuit, then the resonant rise of potential produces a large deflection in the voltmeter. In this manner all the harmonics which are present in the current of the main circuit can be detected in a few minutes.—On some new methods of obtaining platinochlorides, and on the probable existence of a platinum subchloride, by M. Carey Lea. One of the new methods employs potassium acid sulphite, with a solution of which potassium platinic chloride is moderately heated. The reduction takes about ten to twelve hours, and is known to be complete when the solution has a pure red colour free from yellow. The second method is that with alkaline hypophosphites. If in obtaining potassium platinochloride with the aid of a hypophosphite in excess, the heat is continued after complete conversion to the red salt, the solution in a few minutes changes from red to dark brown. The substance which gives the solution this dark brown colour is very deliquescent, and cannot be crystallised. It cannot be completely separated from the other substances in solution. The author is led by its reactions to suspect that it is a subchloride of platinum, analogous to that of silver.

Journal of Anatomy and Physiology, October.—Dr. Gustav Mann, in a paper entitled "Histological Changes induced in Sympathetic, Motor and Sensory Nerve Cells by Functional Activity (preliminary note)," gives an account of experiments made by him to test the observations of Hodge and F. Vas. Dr. Mann's observations relate to the cervical sympathetic ganglia (which also formed the subject of F. Vas's investigations), the motor area of the cerebrum, and to the retina and optic centres of the brain. His results in part agree with those of Hodge, in part with those of Vas, but they also in other particulars go beyond both. He considers that he has placed beyond doubt, that: (1) During rest, several chromatic materials are stored up in the nerve cell, and that these materials are used up by it during the performance of its function. (2) Activity is accompanied by an increase in size of the cells, the nuclei, and the nucleoli of sympathetic, ordinary motor and sensory ganglionic cells. (3) Fatigue of the nerve cell is accompanied by shrivelling of the nucleus, and probably also of the cell, and by the formation of a diffuse chromatic material in the nucleus.

SOCIETIES AND ACADEMIES

LONDON.

Royal Society, November 15.—"On the Ascent of Sap." By Henry H. Dixon, Assistant to the Professor of Botany, Trinity College, Dublin, and Dr. J. Joly, F.R.S.

Strasburger's experiments have eliminated the direct action of living protoplasm from the problem of the ascent of sap, and have left only the tracheal tissue, as an organised structure, and the transpiration-activity of the leaf wherein to seek an explanation of the phenomenon. The authors investigate the capability of the leaf to transpire against excessive atmospheric pressures. In these experiments the leaf was found able to bring forward its water meniscuses against the highest pressures attained and freely transpire. Whether the draught upon the sap established at the leaf during transpiration be regarded as purely capillary or not, these experiments lead the authors to believe that it alone is quite inadequate to effect the elevation by direct tension of the sap in tall trees. Explanations of the lifting of the sap from other causes prove inadequate.

A reconsideration of the principal experiments of previous observers and some new experiments of the authors lead to the view that the ascent is principally in the lumen and not in the wall.

The explanation of how the tensile stress is transmitted in the ascending sap without rupture of the column of liquid is found in the stable condition of this liquid. The state of stability arises from two circumstances: the internal stability of a liquid when mechanically stretched, whether containing dissolved gases or not, and the additional stability conferred by the minutely subdivided structure of the conducting tissue, which renders the stressed liquid stable even in the presence of free gas.

By direct experiments upon water containing large quantities of dissolved air, the state of internal stability is investigated And, further, by sealing up in the vessels, in which the water to be put under tension is contained, chips of the wood of *Taxus baccata*, the authors find that their presence in no case gives rise to rupture of the stressed liquid, but that this occurs preferably anywhere else, and usually on the glass walls. The establishment of tensile stress is effected in the usual way, by cooling the completely filled vessel. A measurement possessing considerable accuracy afforded 7½ atmospheres as being attained in some of the experiments.

The second condition of stability arises directly from the property of the pit-membranes to oppose the passage of free gas, while they are freely permeable to the motion of a liquid. Hence a chance development of free gas is confined in effect to the minute dimensions of the compartment in which it is evolved, and this one lumen alone is rendered for the time being non-conducting. On the other hand, in the water-filled portion of the tracheal tissue, the closing membranes, occupying the median and least obstructive position, the motion of the stress sap is freely allowed. The structure of the conducting tissue is, in fact, a configuration conferring stability on a stressed liquid in the presence (from various causes) of free gas. As neither free gas nor unwetted dust particles can ascend with the sap, the authors contend that the state of tensile stress necessary to their hypothesis is inevitably induced.

The energy relations of the leaf with its surroundings, on the assumption that evaporation at capillary water-surfaces is mainly responsible for the elevation of sap, may be illustrated by the well-known power of the water-filled porous pot to draw up mercury in a tube to which it is sealed. The authors describe an engine in which the energy entering in the form of heat at the capillary surfaces may be in part utilised to do mechanical work: a battery of twelve small porous pots, freely exposed to the air, keeping up the continuous rotation of a flywheel. Replacing the porous pots by a transpiring branch, this too maintains the wheel in rotation. This is, in fact, a vegetable engine. In short, the transpiration effects going on at the leaf are, in so far as they are the result of spontaneous evaporation and uninfluenced by other physiological phenomena, of the "sorting demon" class, in which the evaporating surface plays the part of a sink of thermal energy.

If the tensile stress in the sap is transmitted to the root, the authors suggest that this will establish in the capillaries of the root surface meniscuses competent to condense water rapidly from the surrounding soil. They show by experiment the power possessed even by a root injured by lifting from the soil, of condensing water vapour from a damp atmosphere. Such a state of things may be illustrated by a system (which the authors realised) consisting of two porous pots connected by a tube and all filled with water; one, the "leaf," exposed to the air gives out vapour, the other, the "root," buried in damp earth supplies the demand of the "leaf," and an upward current in the connecting tube is established.

"Further Observations on the Organisation of the Fossil Plants of the Coal-Measures. Part ii. The Roots of *Calamites*." By Dr. W. C. Williamson, F.R.S., and Dr. D. H. Scott, F.R.S.

The conclusions at which the authors arrive are the following:—

(1) The fossils hitherto described under the name of *Astromyelon Williamsonis* are the adventitious roots of *Calamites*.

(2) Their structure is in all respects that characteristic of roots, as is proved by the centripetal primary wood, the alternating strands of primary wood and phloëm, the endogenous mode of branching, and the absence of nodes.

(3) The smallest specimens, with little or no medulla, represent the finest branches of the same roots, of which the large medullate forms are the relatively main axes.

Linnean Society, November 1.—Mr. C. B. Clarke, F.R.S., President, in the chair.—Mr. Alexander Whyte was admitted.—Messrs. H. and J. Groves exhibited an undescribed *Chara* from Westmeath, and made remarks upon its peculiar mode of growth.—Mr. J. O. Tepper exhibited photographs of a new and remarkable fungus from South Australia, *Laccocephalum basilapiloides*, which explained the formation of the peculiar stone-like nodules occasionally found when clearing scrub-land. These were found to be due to the agglutinating nature of the mycelium of this fungus, the grains being permanently cemented by lime and ferruginous oxides.—The Rev. G. Henslow made some remarks on a peculiar mode of propagation of *Oxalis cernua*, observed in Malta, and exhibited some views taken during his sojourn here.—Mr. Miller Christy exhibited a long piece of leaden pipe which had been gnawed through its entire length by rats, in a manner which showed that the object was not, as generally supposed, to get access to water.—Mr. H. M. Bernard exhibited some photographs of corals taken with the "Kodak" camera.—A series of that remarkable beetle *Golinthus giganteus*, from West Africa, was shown by Dr. Heath, and Mr. E. M. Holmes exhibited some plants from Japan.—On behalf of Mr. A. W. Waters, a paper was then read on Mediterranean and New Zealand Retipora and on a fenestrate bryozoan; and on behalf of Dr. J. Müller, a paper on certain lichens in the Kew Herbarium.

Zoological Society, November 6.—Sir W. H. Flower, K.C.B.,, F.R.S., President, in the chair.—The President read a letter addressed to him by the late Emin Pasha, containing a diary of ornithological observations made during the last part of his journey towards the Congo. This letter and journal had been taken from the Arabs on the Upper Congo by the officers of the Congo Free State, and forwarded to the President.—A communication from Mr. F. E. Blaauw, contained some remarks on the colour of the bill in a living specimen of *Cygnus americanus*.—A communication was read from Mr. R. Trimen, containing a reply to some remarks of Dr. A. G. Butler on his paper on the Manica Butterflies collected by Mr. Selous.—A communication was read from Dr. R. W. Shufeldt, containing a correction to his paper on the affinities of the *Steganopodes*, recently published in the Society's *Proceedings*.—Mr. O. Salvin, F.R.S., exhibited a pair of the newly described butterfly *Ornithoptera paradisea*, from the Finisterre Mountains, German New Guinea.—Mr. C. Davies Sherborn exhibited a copy of, and made remarks on the recently issued reprint of George Ord's "American Zoology."—Mr. G. A. Boulenger, F.R.S., exhibited a Gecko, forwarded to him by Mr. R. T. Lewis, which had been captured in winter (July), fully active, on the snow upon the highest portion of the Drakensberg Range, Natal. It belonged to a genus believed until 1888 to be characteristic of the Australian fauna, and differed from its nearest ally, *Œdura africana*, in the smaller and convex granules covering the head and in the rostral shield not entering the nostril. Mr. Boulenger proposed for it the name *Œdura nivaria*.—Mr. Martin Jacoby read descriptions of some new species of the genus *Œdionychis* and allied genera of Coleoptera.—Mr. W. G. Ridewood read a paper on the hyoid arch of *Ceratodus*. The author instituted a comparison between the ventral elements of the hyoid arch of *Ceratodus* and the basi- and hypo-hyal cartilages of the Elasmobranchii. The relations of the hyomandibular cartilage were dealt with in detail, and attention was called to the wide range of variation which this vestigial cartilage exhibits. Arguments were also adduced to show that there is no connection between the reduction of the hyomandibular in the Dipnoi and its adaptation as a secondary suspensorium in the hyostylic fishes.—Mr. G. A. Boulenger, F.R.S., read a third report on additions to the Batrachian Collection in the Natural History Museum, containing a list of the species, new or previously unrepresented, of which specimens had been added to the collection since 1890, and descriptions of some new species.—A communication was read from Mr. R. J. Lechmere Guppy, containing an account of some Foraminifera from the microzoic deposits of Trinidad.—A communication was read from Sir Walter L. Buller, containing remarks on a petrel lately described as new by Captain Hutton, under the name of *Œstrelata leucophrys*.

Geological Society, November 7.—Dr. Henry Woodward, F.R.S., President, in the chair.—Sir John Lubbock exhibited some interesting specimens from the valley of Lauterbrunnen at Murren. The rock forms part of the calcareous strata which stretch to the south-west to Leuk, and to the north-east to the celebrated gorges of the Aar. It has also a great thickness, and is coloured in the geological map of Switzerland as Malm, though some Swiss geologists have recently attributed it to the Trias. Notwithstanding the careful researches of the Swiss geologists no fossils, however, had yet been found in it. During one of the recent excursions of the International Geological Congress, Sir John Lubbock found a layer which is rich in fossils—amongst others *Nummulites Ramondi*, *Orbitoides disparesus* and *Orbitoides papyraceus*. The rock therefore is not Malm, but Eocene. The species have been verified by Prof. Rupert Jones. Sir John Lubbock showed the spot to Prof. Etheridge, who also exhibited some fossils from the same layer. The find will necessitate a substantial correction of the geological map, and is perhaps the more interesting because the specimens were found in a quarry by the roadside in the village of Murren, and actually between the two principal hotels.—Notes on some recent sections in the Malvern Hills, by Prof. A. H. Green, F.R.S. The sections described occur on the east side of the Herefordshire Beacon, and for convenience are named the Warren House Rocks. They are bedded, and have a general north-and-south strike. The great bulk of the rocks are hard, close-grained, and splintery, and are largely altered, and in many cases thickly veined with calcite. Details of their structure were given; and the author stated that he is inclined to regard them as a group of bedded acid lavas and tuffs, crossed by three bands of dolerite. What little balance of evidence there is seems to be in favour of the intrusive character of the dolerites. No true limestones have been found, and the only very calcareous rock seen is regarded as a rock belonging to the volcanic group which has been largely calcified. A discussion followed, in which Mr. Watts, Dr. Hicks, Mr. Rutley, and Mr. Harker took part.—The Denbighshire series of South Denbighshire, by Philip Lake. The area to which this paper chiefly referred is the south-western quarter of the Llangollen basin of Silurian rocks. The beds are there very little disturbed, and the sequence was readily made out. On comparison with other areas it was found that the succession is almost identical with that in the Long Mountain, in North Denbighshire, and in the Lake district. Prof. Hughes, Mr. Hopkinson, Dr. Hicks, Mr. Marr, and Mr. Watts made a few remarks upon the subject of the paper.—On some points in the geology of the Harlech area, by the Rev. J. F. Blake.

Entomological Society, November 7.—Colonel Charles Swinhoe, Vice-President, in the chair—Colonel Swinhoe exhibited a female of *Papilio telearchus*, Hewitson, which he had received by the last mail from Cherra Punji. He said that this was the only known specimen of the female of this species, with the exception of one in Mr. L. de Nicéville's collection, which he had described in the *Journal* of the Bombay Natural History Society in 1893. He also exhibited a male of the same species for comparison.—Mr. C. G. Barrett exhibited abnormal forms of *Pararge megæra*, *P. ægeria*, *Melitea athalia*, *Chrysophanus phlæas*, *Charæas graminis*, *Lophopteryx camelina*, *Plusia gamma*, *Cucullia chamomillæ*, *Boarmia repandata*, var. *conversaria*, and other species, all collected by Major J. N. Still on Dartmoor, Devon. He also exhibited for Mr. Sydney Webb, of Dover, a long series of most remarkable varieties of *Arctia caja*, and *Arctia villica*.—Mr. Gervase F. Matthew, R.N., exhibited seven beautiful and striking varieties of *Arctia villica*, bred from larvæ obtained on the Essex coast, near Dovercourt, in March and April 1893 and 1894.—Herr Jacoby exhibited two specimens of *Blaps mucronatus*, with soft elytra, taken on a wall at Hampstead. The Rev. Canon Fowler and Mr. G. C. Champion made some remarks on the subject of the elytra of immature beetles.—Mr. H. Goss exhibited a specimen of *Periplaneta australasiæ*, received from Mr. C. E. Morris, of Preston, near Brighton. Mr. McLachlan said the species had been introduced into this country, but was now considered a British insect.—Mr. B. G. Rye exhibited specimens of the following rare or local species of Coleoptera, and gave the names of the localities in which they had been taken: *Cicindela germanica*, *Eumicrus rufus*, *Triarthron markeli*, *Mezium affine*, *Homaloplia ruricola*, *Anomala frischi*, var. *julii*, *Synaptus filiformis*, *Lixus paraplecticus*, *Balaninus cerasorum*, *Asemum striatum*, and *Zeugophora flavicollis*.—Mr. McLachlan exhibited for Mr. G. C. Bignell two new species of Ichneumonidæ, from Devonshire, viz. *Pimpla bridgmani*, Bign., a parasite on a spider, *Drassus lapidicolens*, Walck., and *Praon absinthii*, Bign., a parasite on *Siphonophora absinthii*, Linné.—Mr. C. O. Waterhouse stated that the Acridium received from Captain Montgomery, and exhibited by Mr. Goss at the last meeting, was *Acridium septemfasciatum*, and he exhibited the species with the wings extended.—Mr. Ridley exhibited a species of a scale insect (? *Lecanium*) found on a nutmeg tree in Malacca, and made some remarks on *Formica smaragdina*,, which makes its nest on the trees, joining the leaves together by a thin thread of silk at the ends. The first step in making the nest is for several ants to bend the leaves together and hold on with their hind legs, and one of their number after some time runs up with a larva, and irritating it with its antennæ, makes it produce a thread with which the leaves are joined; when one larva is exhausted a second is fetched, and the process is repeated.—Mr. Waterhouse read a paper entitled "Some remarks on the Antennæ of Insects." A discussion followed, in which Messrs. Champion, Jacoby, McLachlan, and Gahan took part.

Mathematical Society, November 8.—Mr. A. B. Kempe, F.R.S., President, in the chair.—At this meeting, which was the first held since the incorporation of the Society, the by-laws, which had been drawn up by the council, were passed unanimously. The ballot was then taken, and the gentlemen whose names were published in NATURE (November 1, No. 1305, p. 19) were declared duly elected to form the new council and officers. The new President (Major MacMahon, F.R.S.) having taken the chair, Mr. Kempe read his address, the title of which was "Mathematics." Other communications made were—a generalised form of the hypergeometric series, and the differential equation which is satisfied by the series, F. H. Jackson; third (and concluding), memoir on certain infinite products, Prof. L. J. Rogers; on the kinematics of non-Euclidean space, Prof. W. Burnside, F.R.S.

Royal Microscopical Society, October 17.—The Rev. Edmund Carr in the chair.—Dr. W. H. Dallinger, F.R.S., described a new model microscope which had been made by Messrs. Watson.—Messrs. Ross exhibited examples of their "Eclipse" microscopes.—Mr. R. T. Lewis exhibited some parasites which had been found upon a penguin from Isipingo, Durban.—Dr. H. Stolterfoth's paper on the genus *Corethron* was read by Prof. Jeffrey Bell.—Mr. E. B. Green read a paper on some parasitic growths on the root-hairs of plants. Mr. A. W. Bennett made some remarks on Mr. Green's paper.—Prof. Bell called attention to the loss the Society had suffered by the death of Dr. G. E. Blenkins, a former secretary.—Mr. F. Chapman gave a *résumé* of part of his paper on the Foraminifera of the Gault of Folkestone. The chairman and Prof. Bell made a few remarks on Mr. Chapman's contribution.—Owing to the absence of the author, Mr. Nelson's paper, on the measuring of the refractive indices of various media, was deferred to the next meeting on November 21.

CAMBRIDGE.

Philosophical Society, October 29.—Prof. T. McKenny Hughes, President, in the chair.—The officers for the ensuing session were elected as follows:—President: Prof. J. J. Thomson. Vice-Presidents: Prof. Sir G. G. Stokes, Prof. Hughes, Mr. F. Darwin. Treasurer: Mr. Glazebrook. Secretaries: Mr. Larmor, Mr. Newall, Mr. Bateson. New Members of Council: Dr. Glaisher, Prof. Ewing, Mr. F. H. Neville, Mr. E. H. Griffiths, Mr. W. B. Hardy, Mr. H. F. Baker. The retiring President, Prof. Hughes, before vacating the chair, addressed the Society. The President elect, Prof. Thomson, on taking the chair, referred to the loss sustained by science in the death of Prof. von Helmholtz.—Note on geometrical mechanics, by Prof. Sir Robert S. Ball.—On a model of the twenty-seven lines on a cubic surface, by Mr. W. H. Blythe. Mr. Blythe exhibited a model of the twenty-seven straight lines on a cubic surface, together with the drawings from which it was constructed. He stated that the 135 points of intersection of these lines can, in a special case, be determined by a simple geometrical construction without reference to any equation. Seven points taken at random on the edges of a tetrahedron are sufficient to give values to all necessary constants, and these points acting as pointers by pairs, fix the position of eleven other points; these eighteen points being used to determine others, and so on. This method is also applicable to the general case, but determines fifteen lines only; when however the sixteenth line or one point on it is fixed by a process of adjustment the remaining points can be found in the same way.—Exhibition of some photographs showing the marks made by stars on photographic plates exposed near the focus of a visual telescope, by Mr. H. F. Newall.

PARIS.

Academy of Sciences,, November 12.—M. Lœwy in the chair.—The President announced the death of M. Duchartre, and an account of this botanist's life and works was delivered by M. Bornet.—On the transit of Mercury, by M. J. Janssen. Owing to unfavourable weather, only a part of the transit was observed at Paris.—Researches on the condensation of electrolytic gases by porous bodies, particularly by metals of the platinum group; applications to the gas battery; electric accumulators under pressure, by MM. L. Cailletet and E. Collardeau. Platinum and palladium in the spongy condition, and ruthenium, iridium, and gold in the finely divided state form poles which condense electrolytic gases, and hence produce a gas battery, on subsequent connection of the poles, capable of giving up the stored energy during a short time. The storage capacity may be vastly increased by subjecting the poles to great pressure during charging. With spongy platinum and iridium a storage capacity may be attained greater than the practical capacity of lead accumulators per unit weight. Silver, tin, nickel, cobalt, and carbon do not form accumulators under these conditions with capacity increasing with the pressure.—New details concerning the Nymphæinæ of the Lower Cretaceous system, by M. G. de Saporta.—A study of the causes of saline digestion, by M. A. Dastre. Saline digestion is not due to the action of soluble ferments, and is not caused by microbes.—On the disappearance of the southern polar spot of Mars, by M. G. Bigourdan.—The transit of Mercury, by M. E. L. Trouvelot. (See our Astronomical Column.)—On an error detected in the "theory of numbers" of Legendre, by M. Dujardin.—On the representation of left-handed algebraical curves and on a formula by Halphen, by M. Léon Autonne.—On an empirical formula, by M. Pervouchine, by M. Ernest Cesàro.—Direct experimental determination of the specific heat of saturated vapour and of the heat of internal vaporisation, by M. E. Mathias. The general method given permits, by means of a double series of calorimetric experiments with an apparatus charged once for all, of the complete resolution of the problem of the calorimetric study of a substance, and shows that the specific heat of saturated vapour is susceptible of direct experimental determination.—Determination of the molecular weight of liquids, by M. Ph. A. Guye. The author gives methods of determining molecular weights of substances from a knowledge of their critical coefficients and molecular refractions and from their critical coefficients only. The relationships for a number of hydrocarbons are given, and the deduction is drawn that these hydrocarbons have the same molecular weights in the gaseous state, in the critical state, and in the liquid state.—On active amylacetic acid and some of its derivatives, by Mdlle. Ida Welt. The rotatory powers of a number of these derivatives are given. Methyl amylacetate has a rotatory power $[\alpha]_D = +6\cdot71$; for the corresponding ethyl salt $[\alpha]_D = +6\cdot66$. The products of asymmetry calculated for the same compounds bear the ratio 375:

343.—On the campholenes and on the constitution of camphor, by M. A. Béhal.—Researches on the oxidation of alcohols by Fehling's solution, by M. Fernand Gaud. Methyl, ethyl, and propyl alcohols yield the corresponding aldehydes and salts of the corresponding acids when the alcohol is in excess; when the reagent is in excess and the heating is prolonged at a higher temperature, salts of the corresponding acids are obtained, but no aldehyde.—Biological observations made on *Schistocerca peregrina*, Olivier, during the invasions of 1891, 1892, and 1893 in Algeria, by M. J Künckel d'Herculais.—On the swarming of Termites, by M. J. Pérez.—On the assimilation of nitrates by plants, by M. Demoussy.

Berlin.

Physical Society, October 19.—Prof. du Bois Reymond, President, in the chair.—The President referred to the loss the Society had sustained by the death of von Helmholtz.—Prof. Boernstein demonstrated an experiment of Messrs. Elster and Geitel on the influence of polarisation on the outflow of negative electricity which may be brought about by light. The most suitable metals for the experiment are sodium or potassium or their alloys. A liquid alloy of potassium was charged with negative electricity so that the leaves of an electroscope connected with it were widely divergent. As soon as the rays of an incandescent lamp were allowed to fall on the surface of the alloy, the room being previously darkened, the leaves of the electroscope approached each other as due to an outflow of electricity. When the light was polarised by a Nicol prism it now led to a discharge only when the plane of its vibrations coincided with that of its incidence; in the plane at right-angles to the above the action of the light was reduced to a minimum.—Prof. Koenig recounted the results of his researches on the significance of visual purple. (Previously communicated to the Physiological Society on July 20. See Nature, No. 1298, p. 492.) A discussion followed, in which the President, Prof. von Bezold, Prof. Neesen, and Dr. Rubens took part. The last-named supported Prof. Koenig's view that the fovea centralis is colour-blind for blue, by pointing out that fine blue lines in the spectrum cannot be seen by absolutely direct vision, but only by indirect vision.

Physiological Society, October 26.—Prof. du Bois Reymond, President, in the chair.—The President dwelt on the recent deaths of their honorary President, von Helmholtz, and Prof. Pringsheim, and drew attention to the more important botanico-physiological researches of the latter.—Dr. Bendix spoke on the influence of sterilising milk on its digestibility. If milk is sterilised by prolonged boiling or the passage of steam through it, a series of changes take place. The sugar is turned into caramel, and the sweet taste changes correspondingly, and, further, on cooling the fat tends to form lumps, and thus destroy the emulsion. Three experiments had been made on children between the ages of one and two years, each experiment consisting of two series. In the first, the children received either fresh milk, or such as had only been once boiled-up, together with some white bread; in the second, the same amounts of sterilised milk and bread. A comparison of the nitrogen and fat in the food and fæces showed that the sterilised milk was just as completely utilised as the unsterilised.—Dr. Cowles spoke on his cardiographic researches carried out on mammals. In his earlier experiments he had found the frog's heart to be the most suitable object, lying firmly as it does in a depression of the liver. Working with this, he had observed that as long as the heart is normally filled with blood the apex remains at rest on the surface of the liver during systole, whereas when deprived of blood it is raised at each systole. Among mammals he had not as yet found a heart so suitable for the experiment. In the dog, rabbit, and cat, the heart lies on the lung-tissue, is hence easily pushed to one side, and is thus readily displaced by any levers or other apparatus brought to bear upon it. In monkeys, also, there is a fold of the lungs lying between the diaphragm and the heart, so that up to the present he had not been able to obtain any reliable cardiographic tracings by placing levers on the outside of the mammalian heart.

Göttingen.

Royal Society of Sciences.—The *Nachrichten* (June-July 1894) contains the following papers of scientific interest:

June 9.—O. Wallach: On the relations of the carvon-series ($C_{10}H_{14}O$) and the properties of the oximes of cyclic ketones (III.). J. Hermes: On the division of the circle into 65,537 equal parts. A. von Koenen: On the geological survey of Southern Hanover.

June 23.—P. Drude: Studies on the electric resonator.

July 7.—David Hilbert: Outlines of a theory of Galois' *Zahlkörper*. K. Schering and C. Zeissig: New photographic method of registering the time and the position of the magnets in magnetometers and galvanometers. Ludwig Aschoff: Contribution to the subject of atypical epithelial proliferation and the origin of pathological glandular growths.

BOOKS, PAMPHLETS, and SERIALS RECEIVED.

Books.—Nuellenkende: Prof. H. I. Haas (Leipzig, Weber).—A Laboratory Manual of Organic Chemistry: Dr. W. R. Orndorff (Boston, Heath).—Practical Methods in Microscopy C. H. Clark (Boston, Heath).—Life at the Zoo: C. J. Cornish (Seeley).—Alembic Club Reprints, No. 9: The Elementary Nature of Chlorine: Humphry Davy (Edinburgh, W. F. Clay).—Outlines of Biology; P. C. Mitchell (Methuen).—Radiant Suns: A. Giberne (Seeley).—By Vocal Woods and Waters: E. Step (Bliss).—Rhythmic Heredity: H. C. Hiller (Williams and Norgate).—Report of the Fifth Meeting of the Australasian Association, September 1893 (Sydney).—Practical Inorganic Chemistry: E. J. Cox, 3rd edition (Rivington).—Australasia, Vol. 2: Malaysia and the Pacific Archipelagoes: Dr. F. H. H. Guillemard (Stanford).—Cloudland: Rev. W. C. Ley (Stanford).—Primer of Psychology: Prof. J. T. Ladd (Longmans).—Psychology for Teachers: C. Lloyd Morgan (Arnold).

Pamphlets.—Notes on Tours along the Malabar Coast: E. Thurston (Madras).—In Defence of Pasteurism: Dr. M. B. Colah (Bombay).—Mitteilungen des Vereins für Erdkunde zu Halle a.S. 1894 (Halle a.S.).

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